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Exceptional Movement from the Criterial Position

– A Case from Scandinavian Object Shift –*

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ABSTRACT. In this paper, I discuss exceptional movement from the Criterial Position within the framework of Labeling Algorithm (Chomsky 2013, 2015), taking Scandinavian Object Shift (Holmberg 1986) as example. It is argued that the Criterial Position is the position where a raised category completes the valuation of all of its unvalued features. After it completes the valuation of all of its unvalued feature(s), it cannot move up further and must stop in that raised position, i.e. in the Criterial Position for that category. The object, either a full NP or an object pronoun, moves to the Spec of R and its unvalued Case is assigned; the object then stops there. That is, the Spec of R is the Criterial Position for the object in the unmarked case, where the object completes the valuation of all of its unvalued feature(s). But the object pronoun in the Scandinavian languages can exceptionally move out of that position. According to Hosono (2013), downstep occurs in the construction in which the object pronoun moves, whereas it does not occur in the constructions in which it does not move. Her claim indicates that movement of the object pronoun occurs when it is required from the phonological/phonetic component: it is only when downstep needs to be caused that the object pronoun can move. I propose that exceptional syntactic movement from the Criterial Position can occur only when it is required from phonology. This exceptional movement required from phonology is formulated as the syntactic movement in which a raised category moves without any unvalued feature(s).

Keywords. Criterial Position, Labeling Algorithm, Scandinavian Object Shift, Intonation

1. Introduction

It has long been argued that a sentential element cannot move up further from some structural positions, the problem called the *Halting Problem* (HP, Rizzi 2006, 2010, 2015; Chomsky 2013, 2015). In (1a), the *wh*-object *which dog* moves from its original position to the Spec of the embedded C and must stop there. It cannot move up to the Spec of the matrix

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C; see (1b). Such positions as the Spec of the embedded C in which a sentential element is frozen (and cannot move up further) are called the *Criterial Position* (CriP).[1]

(1) a. You wonder [CP [which dog] C John likes ~~[which dog]~~].[2]
b. *[CP [which dog] do you wonder [CP ~~[which dog]~~ C John likes ~~[which dog]~~]]?

In this paper, I discuss exceptional movement from the CriP within the framework of *Labeling Algorithm* (LA, Chomsky 2013, 2015), taking Scandinavian *Object Shift* (OS, Holmberg 1986) as example. It is argued that the CriP is the position where a raised category completes the valuation of all of its unvalued features. After it completes the valuation of all of its unvalued feature(s), it cannot move up further and must stop in that raised position, i.e. in the CriP for that category. The object, either a full NP or an object pronoun, moves to the Spec of R and its unvalued Case is assigned; the object then stops there. That is, the Spec of R is the CriP for the object in the unmarked case, where the object completes the valuation of all of its unvalued feature(s). But the object pronoun in the Scandinavian languages can exceptionally move out of that position. According to Hosono (2013), downstep occurs in the construction in which the object pronoun moves, whereas it does not occur in the constructions in which it does not move. Her claim indicates that movement of the object pronoun occurs when it is required from the phonological/phonetic component: it is only when downstep needs to be caused that the object pronoun can move. I propose that exceptional syntactic movement from the CriP can occur only when it is required from phonology. This exceptional movement required from phonology is formulated as the syntactic movement in which a raised category moves without any unvalued feature(s).

The paper is organized as follows. Section 2 introduces the basic idea of the LA framework and describes how to derive the HP within this framework. Sections 3 introduces the basic properties of Scandinavian OS as well as the experiment on the intonational properties of the constructions relevant to Scandinavian OS (Hosono 2013). Section 4 discusses the way of deriving Scandinavian OS on the basis of the LA system and exceptional properties of this movement phenomenon. Section 5 proposes that exceptional syntactic movement from the CriP can occur only when it is required from phonology. Section 6 briefly concludes this paper.

2. Labeling Algorithm and the Derivation of the Halting Problem

According to Chomsky (2013, 2015), a syntactic object does not inherently have a phrasal label, but it is labeled in the course of derivation by LA, a minimal search of computation. Chomsky proposes the following labeling procedures. First, when a phasal head, either v* or C, merges to a maximal projection XP, LA takes the label of that phasal head.

[1] See Rizzi (2006, 2010, 2015) for an account of the CriP in terms of Criterial Freezing.
[2] Here, I tentatively notate the embedded and matrix clauses as CP. The notation of phrasal labels is to be renewed in the next section and thereafter.

Secondly, when a non-phasal head, either a verbal root R or T, which is weak by assumption, merges to XP, a category inside XP needs to move to the Spec of that non-phasal head to strengthen it. The raised category and the non-phasal head agree in some feature(s), and LA takes the shared feature(s) as the label of the projection.

Thirdly, when two maximal projections, XP and YP, merge, one way to label the projection is that one of them moves out of that configuration. LA searches the head of the remaining maximal projection, either X or Y, and takes it as the label of the projection. The other way is that LA searches the feature shared by Agree between XP and YP. LA takes the shared feature, e.g. φ-features, and labels the projection <φ,φ>.

Chomsky (2015) argues that the HP (1a-b) is derived as follows. When *which dog* moves and stays in the Spec of the embedded C, which has Q, Agree occurs between the unvalued [Q] of *which dog* and the valued [Q] of C_Q. The projection of C_Q, i.e. β, is labeled <Q,Q>, with the shared feature [Q] taken; see (2a). When *which dog* moves out of [Spec,β], LA takes C_Q as the label of β. This means, he argues, that the embedded clause is interpreted as a *yes-no* question, which is gibberish and causes (2b) to be ungrammatical.

(2) a. You wonder [$_{\beta<Q,Q>}$ [which dog] C_Q John likes ~~[which dog]~~]. (=1a)
b. *[$_{\alpha}$ [which dog] do you wonder [$_{\beta<CQ>}$ ~~[which dog]~~ C_Q John likes ~~[which dog]~~]]? (=1b)

Note that *which dog* completes the valuation of its unvalued [Q] in [Spec,β] and does not have any more unvalued feature(s),[3] which prevents it from moving up to the matrix Spec. That is, the CriP, i.e. [Spec,β] here, is the position where a raised category completes the valuation of all of its unvalued features. Without any more unvalued feature(s), *which dog* cannot agree with the matrix C head, which prevents it from moving up to the Spec of α. This indicates that, in the LA system, a raised category must have some unvalued feature(s) in which it agrees with a head in a raised position. After it completes the valuation of all of its unvalued feature(s), it cannot move up further. It must stop in that raised position, i.e. in the CriP for that category. Thus, the HP problem (2a-b) is fully accounted for without assuming an 'extra' possibility that a category can still move out of the CriP as Chomsky claims: a category raised into the CriP should not be able to move up further without any more unvalued feature(s) in the LA derivational system.[4]

[3] The unvalued Case of the (*wh*-)object has already been valued in a lower Spec, which I turn to soon below.

[4] As Hisatsugu Kitahara points out (p.c.), a category raised into the CriP cannot move up further by definition under the Criterial assumption in the cartographic framework; see a series of Rizzi's (2006, 2010, 2015) works on cartography.

3. Scandinavian Object Shift (Holmberg 1986) and its Intonational Properties (Hosono 2013)

3.1 Scandinavian Object Shift (Holmberg 1986)

In the Scandinavian languages, weak pronominal objects can move across a sentence adverb like a negation (3a), contrary to full NP objects that do not move in the unmarked case (3b).

(3) a. Jag målade den inte. [Swe.]
I painted it not
'I didn't paint it.'

b. Jag kysste inte Marit.
I kissed not Marit
'I didn't kiss Marit.'

Scandinavian OS is dependent on verb movement (*Holmberg's Generalization*, Holmberg 1986).[5] That is, in simple tense forms (4a), the main verb moves to the second position; the object pronoun can move too. OS is obligatory in some of the Scandinavian varieties, but optional in others. On the other hand, in complex tense forms (4b), the main verb does not move due to the presence of the Aux(iliary verb). In embedded clauses (4c), main verb movement does not occur. The object pronoun can move across the negation in neither of the cases.

(4) a. Jag målade <^{OK}den> inte [$_{VP}$ ~~målade~~ <^{OK}den>]. [Swe.]
I painted it not it
'I didn't paint it'

b. Jag har <*den> inte [$_{VP}$ målat <^{OK}den>].
I have it not painted it
'I haven't painted it.'

c. Jag sa att jag <*honom> inte [$_{VP}$ målade <^{OK}honom>].
I said that I him not portrayed him
'I said that I didn't portray him.'

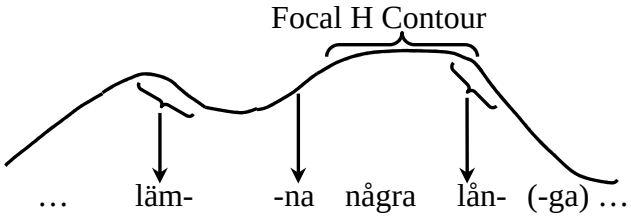
No movement phenomenon other than OS in which movement of a sentential element is dependent on that of another sentential element has been found. Due to this property, OS has long been controversial in generative syntax (Diesing 1992, 1997; Holmberg and Platzack 1995; Holmberg 1999; Chomsky 2001; Sells 2001; Vikner 2001; Josefsson 2003, 2010; Fox and Pesetsky 2005; Erteschik-Shir 2005; Broekhuis 2008; Mikkelsen 2011; among others).

[5] In this paper, the term *Object Shift* refers to weak pronoun shift only.

3.2 The Intonational Properties of (Swedish) Object Shift (Hosono 2013)

In Swedish, the focus of a sentence is realized by a *focal H contour*, which is added after the pitch gesture of a main syllable of a focused word (Bruce 1977). In (5), the main verb *lämna* is (contrastively) focused. A focal accent is located on the first syllable *läm-* of *lämna*. The focal H contour occurs immediately after the pitch gesture of that accented first syllable.[6] The focal H contains the unaccented quantifier *några* and also the first syllable *lån-* of the adjective *långa*, which is the next accentable syllable after the main verb. The pitch peak occurs on that first syllable *lån-* of *långa*. The pitch then falls and continues to lower until the end of the sentence.

(5) Man vill LÄMNA några långa nunnor. [Swe.]
man wants leave some long nuns
'One wants to leave some tall nuns.'



(Bruce 1977:42, Fig. 5)

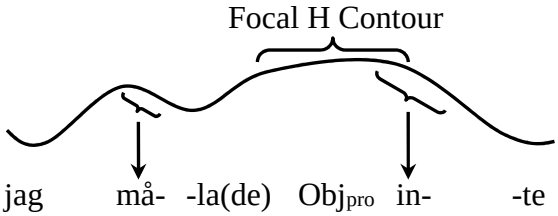
A prediction on the intonational properties of the OS construction is illustrated in (6).[7] In the unmarked case, the focus of the OS construction is carried by the main verb, i.e. *målade*, and a focal accent occurs on its first syllable *må-*. The focal H contour should occur immediately after that accented first syllable.[8] The focal H should contain the shifted object pronoun *den* and also the first syllable *in-* of the negation *inte*, which is the next accentable syllable after the main verb. The pitch peak should occur on that first syllable of the negation.

(6) Jag målade den inte. [Swe.]
I painted it not
'I didn't paint it.'

[6] Braces indicate the range of the pitch gesture of a relevant accented syllable, i.e. the range of H*L from the H on which the accent occurs to the following L, here.

[7] Hereafter, I refer to the construction in which the object pronoun moves as the *OS-construction* and those in which it does not move as the *non-OS construction*.

[8] The final syllable *-de* of the main verb is dropped in almost all cases. Thus hereafter, I notate it by attaching it in parentheses to the second syllable as in *-la(de)* in all notations.



Hosono (2013) carries out an experiment to observe the intonational properties of the constructions relevant to OS. In her experiment, on the basis of the literature on information structure (e.g. Lambrecht 1994, Vilkuna 1995, Kiss 1998), appropriate contexts were built with a question and the answer, the latter of which corresponds to a target construction. Specifically, polarity-focus was set for simple tense forms and complex tense forms, and clausal argument-focus was set for embedded clauses. Each target construction contained either a monosyllabic object pronoun (e.g. *den* 'it') or a disyllabic object pronoun (e.g. *honom* 'him'). The informants were asked to read the test sentences five times under the following conditions: i) to understand the contexts of each question-answer pair, and ii) to read each question-answer pair in appropriately rapid speech, in such a way as they speak in a real-life conversation.[9]

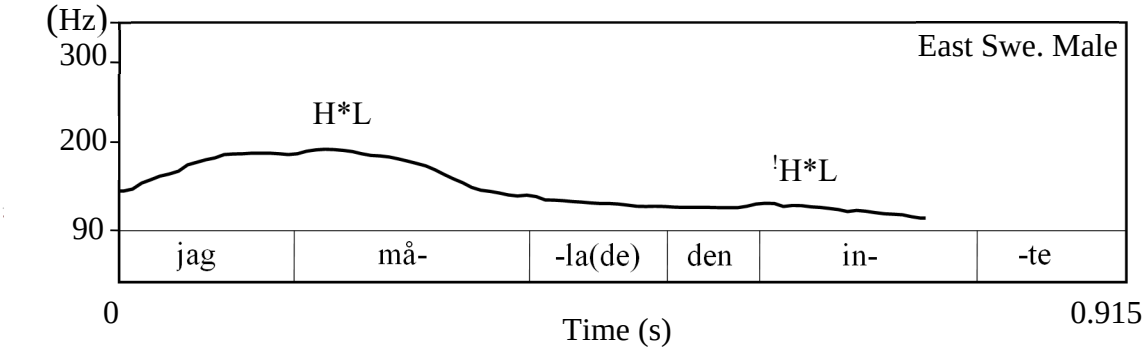
The pitch contour of the OS construction is presented in (7). The pitch peak occurs on the first syllable *må-* of the main verb *målade*. The pitch lowers on the shifted object pronoun *den*. The pitch does not rise again on the first syllable *in-* of the negation *inte*. That is, contrary to the prediction illustrated in (6), the fundamental frequency F0 of the first syllable of the negation, i.e. *in-*, is lower than the F0 of the main syllable *må-* of the focused main verb *målade* in the OS construction of simple tense forms. This indicates that *downstep* (cf, Gussenhoven 2004) occurs in the OS construction.[10,11]

(7) Simple tense forms:
(Målade du väggen? – Nej.) Jag målade den inte.
'(Did you paint the wall?' – No.) I didn't paint it.'

[9] See Hosono (2013) for a thorough investigation of the intonational properties of Scandinavian OS. She actually collected data relevant to the OS construction from all the Scandinavian languages/dialects: Swedish (East, West, North, South, Finland Swedish, Dalecarlian, and Övdalian); Norwegian (East and West); Danish (East and South); Icelandic; and Faroese.

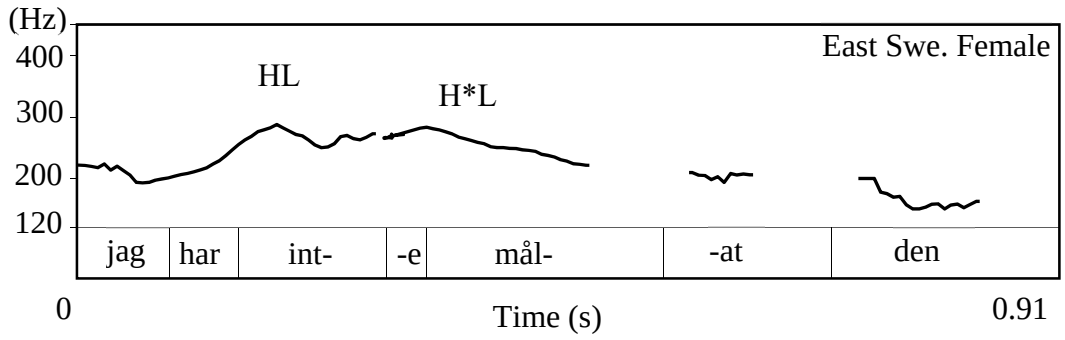
[10] *Downstep* means, in this work, the pitch lowering from an accentable syllable to the next accentable syllable, i.e. the pitch lowering from the main syllable of a main verb to the first syllable of the negation in simple tense forms, and the pitch lowering from the first syllable of the negation to the main syllable of a main verb in comlex tense forms and embedded clauses.

[11] One might argue that prediction (6) might be wrong in that the focal H should not occur in the OS construction: due to its given status, the main verb would only keep an (inherent) word accent. However, a focal H should occur in any sentence for an information-structural reason: a sentence must have one and only one focus (Lambrecht 1994). The focal H in fact occurs even in all-new sentences that do not contain an 'obviously focused' element such as contrastive focus (Bruce 2007). Thanks to Gilbert Ambrazaitis, Merle Horne and Sara Myrberg for the discussion on this point.

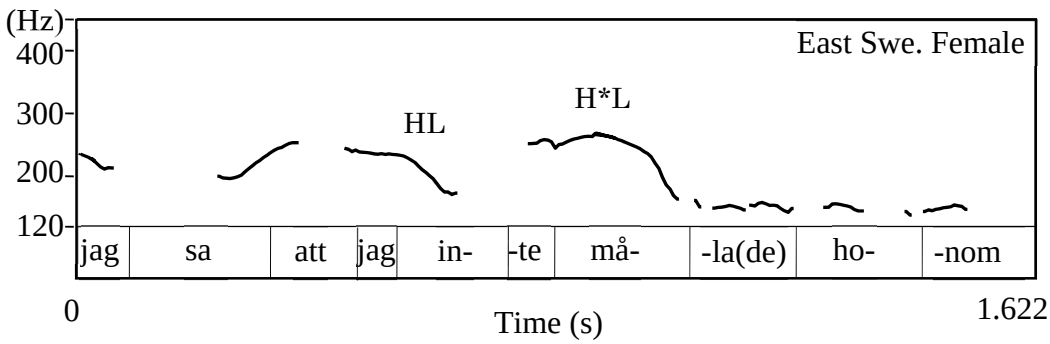


The pitch contours of the non-OS construction are presented in (8-9). In complex tense forms (8), the pitch does not lower on the first syllable *in-* of the negation *inte*. In embedded clauses (9), the pitch peak occurs mostly on the embedded main verb. That is, downstep does not occur in the non-OS construction.

(8) Complex tense forms:
(Har du målat väggen? – Nej.) Jag har inte målat den.
'(Have you painted the wall? – No.) I haven't painted it.'



(9) Embedded clauses:
(Vad sa du? –) Jag sa att jag inte målade honom.
'(What did you say? –) I said that I didn't portray him.'



On the basis of the data above, Hosono (2013) proposes the following hypothesis: the object pronoun moves to cause downstep. Holmberg's Generalization is accounted for as follows. In (4a-c), the main verb carries the focus in the unmarked case. In simple tense forms (4a), the object pronoun moves to cause downstep and eliminate a focal effect on the negation located after the main verb. In complex tense forms (4b) and embedded clauses (4c), the final pitch peak occurs on the in-situ main verb located after the negation. Since the pitch continues to rise up to the main verb, the object pronoun must not move and cause downstep before the main verb (Hosono 2013:148-151).[12]

4. Labeling Algorithm and the Derivation of Scandinavian Object Shift

The derivation of (3a-b) based on the LA system is illustrated in (10a-b). Let us consider the derivational process until when v*P is transferred.

(10) a. … C [$_{\alpha<\varphi,\varphi>}$ jag [T [$_{\beta}$ inte [$_{\gamma<v^*>}$ ~~jag~~ [målade(=R)+v* [$_{\delta<\varphi,\varphi>}$ den [~~målade(=R)~~ [$_{\varepsilon}$ ~~den~~]]]]]]]]

b. … C [$_{\alpha<\varphi,\varphi>}$ jag [T [$_{\beta}$ inte [$_{\gamma<v^*>}$ ~~jag~~ [kysste(=R)+v* [$_{\delta<\varphi,\varphi>}$ Marit [~~kysste(=R)~~ [$_{\varepsilon}$ ~~Marit~~]]]]]]]]

The verbal root R, *målade* (10a)/*kysste* (10b), merges to the internal argument, *den* (10a)/*Marit* (10b). Since *målade*/*kysste*(=R) is a non-phasal head and weak, *den*/*Marit* moves to [Spec,δ] to strengthen it. The phasal head v* merges to δ. Phasehood is inherited from v* to R, that is, functional features such as φ-features that are located in v* are inherited to *målade*/*kysste*(=R). *Målade*/*kysste*(=R) and *den*/*Marit* in its Spec Obj(ect)-agree and the latter is assigned an Acc(usative Case). δ is labeled <φ,φ>. *Målade*/*kysste*(=R) moves to v* to become a verbal category. Phasehood is activated in the original position of R. ε, the complement of R (which is now vacuous), is transferred.

Then, the external argument of v*, *jag*, the negation *inte* and T merge in turn. Since T is a non-phasal head and weak, DP in its complement, i.e. *jag* in [Spec,γ], moves to [Spec,α] to strengthen it. After *jag* moves out, LA finds the phasal head v* and γ is labeled <v*>. The phasal head C merges to α. Phasehood is inherited from C to T, that is, functional features in C including φ-features are inherited to T. T and *jag* in its Spec Subj(ect)-agree and the latter is assigned a Nom(inative Case). α is labeled <φ,φ>. Phasehood is activated in T. γ<v*>, the complement of T, including δ<φ,φ>, is then transferred.

Consider the properties of the position where the object is located, i.e. [Spec,δ]. The object, *den* (10a)/*Marit* (10b), moves to that position and Obj-agrees with *målade* (10a)/*kysste* (10b). The unvalued Case of the object is assigned an Acc by the φ-features in *målade*/*kysste*(=R). The object stops there. That is, [Spec,δ], i.e. the Spec of R in which the object completes the valuation of all of its unvalued feature(s), is the CriP for the object. Except when the object still has other unvalued feature(s) that cannot be valued there and

[12] I turn to the simple tense form in which the object pronoun does not move later.

need to be valued in a higher position, as in the case of *wh*-objects that have an unvalued [wh], the object stops and is frozen in [Spec,δ] in the unmarked case.

Therefore, the object, whether it is an object pronoun such as *den* (10a) or a full NP object such as *Marit* (10b), could not move up further: with all the unvalued feature(s) such as an unvalued Case valued in [Spec,δ], the object could not move out of [Spec,δ]. But object pronouns in the Scandinavian languages can exceptionally move out, though it does not have any more unvalued feature(s).[13]

5. Proposal

Let us summarize the discussions so far. The CriP is the position where a raised category completes the valuation of all of its unvalued features. In the LA system, a raised category must have some unvalued feature(s) in which it agrees with a head in a raised position. After it completes the valuation of all of its unvalued feature(s), it cannot move up further. It must stop in that raised position, i.e. in the CriP for that category. The object, either a full NP or an object pronoun, moves to the Spec of R and Obj-agrees with the main verb. Its unvalued Case is assigned and it stops there. That is, the Spec of R is the CriP for the object, where the object completes the valuation of all of its unvalued feature(s). Except when the object still has other unvalued feature(s) that cannot be valued there and need to be valued in a higher position, as in the case of *wh*-objects that have an unvalued [wh], the object stops and is frozen in the Spec of R in the unmarked case. But the object pronoun in the Scandinavian languages can exceptionally move out of that position.

Hosono's (2013) claim introduced in section 3.2 indicates that movement of the object pronoun occurs when it is required from the phonological/phonetic component. As argued in section 4, the object in general could not move out of the Spec of R, the CriP for the object in the unmarked case, since it completes the valuation of all of its unvalued features there. But only the object pronoun in the Scandinavian languages can exceptionally move out of that position without any more unvalued feature(s). It is only when downstep needs to be caused that the object pronoun can move.

Based on Hosono's (2013) claim on Scandinavian OS, I make the following proposal:

(11) Exceptional movement from the Criterial Position can occur only when it is required from phonology.

Precisely how is exceptional movement required from phonology syntactically formulated? As has been stated so far, in the LA system, a raised category must have some unvalued feature(s) in which it should agree with a head in its raised position. In Scandinavian OS, after the object pronoun has its unvalued Case valued in the Spec of R, it can exceptionally move out without any more unvalued feature(s). Thus, I formulate as follows:

[13] In Icelandic, full NPs can optionally move, which I leave aside here.

(12) Exceptional movement from the Criterial Position required from phonology:
The syntactic movement in which a raised category moves without any unvalued feature(s).

It is predicted that when there is no requirement from phonology, movement from the CriP does not need to occur. This is confirmed by Hosono's (2013) statistical data on downstep in the constructions relevant to Scandinavian OS. As stated in section 3.1, OS is obligatory in some of the Scandinavian varieties, but optional in others; see (4a). According to Hosono, OS is optional in Swedish as well as in far more Scandinavian varieties than considered so far, contrary to the claim in the literature (e.g. Chomsky 2001).[14] Hosono shows that the ratio of downstep in the simple tense form in which the object pronoun moves, i.e. *jag målade den inte* (I painted it not), is significantly higher than the ratio of downstep in the simple tense form in which the object pronoun does not move, i.e. *jag målade inte den* (I painted not it). This data indicates that when downstep needs to occur due to the requirement from phonology, the object pronoun moves out of the CriP and causes downstep. When downstep does not need to occur, the object pronoun does not need to move out of the CriP.[15]

6. Conclusion

In this paper, I have discussed exceptional movement from the CriP within the LA framework (Chomsky 2013, 2015), taking Scandinavian OS (Holmberg 1986) as example. It has been argued that the CriP is the position where a raised category completes the valuation of all of its unvalued features. After it completes the valuation of all of its unvalued feature(s), it cannot move up further and must stop in that raised position, i.e. in the CriP for that category. The object, either a full NP or an object pronoun, moves to the Spec of R and its unvalued Case is assigned; the object then stops there. That is, the Spec of R is the CriP for the object in the unmarked case, where the object completes the valuation of all of its unvalued feature(s). But the object pronoun in the Scandinavian languages can exceptionally move out of that position. According to Hosono (2013), downstep occurs in the OS construction, whereas it does not occur in the non-OS construction. Her claim indicates that movement of the object pronoun occurs when it is required from the phonological/phonetic component: it is only when downstep needs to be caused that the object pronoun can move. I have proposed that exceptional syntactic movement from the CriP can occur only when it is

[14] Josefsson (2003) has already claimed, with her experimental data, that OS is optional in Swedish.

[15] The statement here that OS occurs only when downstep needs to occur answers the question how movement that occurs due to the requirement from phonology can be restricted, which is raised by Johan Brandtler (p.c.). He also suggests the possibility that the requirement from phonology that something must move could override the syntactic movement required due to feature valuation. Actually, this possibility does not arise. When a (pronominal) object has an unvalued Case, it moves to the Spec of R and its unvalued Case is valued there. Thus, when a sentential element with some unvalued feature(s) moves, that is an obligatory syntactic movement and cannot be overridden by any phonological requirement.

required from phonology. This exceptional movement required from phonology has been formulated as the syntactic movement in which a raised category moves without any unvalued feature(s).

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